INVESTIGATIVE SAMPLING
FOR
BAKER PROPERTIES
CORTLANDT, NEW YORK

PREPARED FOR:

BAKER PROPERTIES
485 WASHINGTON AVENUE
PLEASANTVILLE, NEW YORK 10570

PREPARED BY:

IT CORPORATION
7 CRAGWOOD ROAD
AVENEL, NEW JERSEY 07001

MARCH 1992

INTRODUCTION

On January 29, 1992, IT's Field Analytical Services (ITFAS) group conducted an investigative sampling episode at the Baker Properties site in Cortlandt, New York. The sample locations were based in part on the results of previous sampling events conducted at the site, formerly Magna Metals, during 1978, 1982, 1983, and 1984, as well as a site walk, conducted on October 15, 1991.

The intent of this sampling event is to re-evaluate the current extent of the on-site and off-site contamination that was detected in the earlier agency investigations. As agreed upon by Mike Baker of Baker Properties, and Ron Kenyon of ITFAS in a proposal/quote dated January 9, 1992, the areas of concern to be sampled and analyzed are: Pit A (Pit 4) (water and sediment), Pit 2 (sediment only), and three stream locations to be based on previous sampling for sediment and water sample analysis. These locations were delineated at the actual time of sampling as Upstream (in Furnace Brook, to the north of the affected area); Tributary (a small unnamed stream running along the southern wetlands portion of the property adjacent to the residential area); and Downstream (in Furnace Brook, approximately 60-70 feet downstream of the confluence of the Tributary and Furnace Brook).

A field blank was also included in the sampling plan. All samples were analyzed at the IT Analytical Services laboratory in Edison, New Jersey, which is NYDEC, and NYDOH certified. The analytical parameters for these water and sediment samples are volatile organic compounds and total metals (see Tables 1, 2, 3 and 4 for locations and specific results).

SCOPE

Upon arrival at the Baker Properties Northern Westchester Business Park (Magna Metals) site, representatives of ITFAS met with Mike Baker of Baker Properties to confirm all sample locations prior to actual collection. The location of Pit 2 was verified and a wooden stake was situated adjacent to the cement roof of the leaching pit with the date and name included. The same procedure was followed at location Pit A, (formerly Pit 4 on the sample results from 1983 and 1984). Measurements were taken with a tape measure to correlate these leaching pits to a fixed point of reference, namely the small cement/cinder block building adjacent to Pit 2 (see Figure 1). Also, it was noted by everyone present that Pit 2 contained water, while Pit A (Pit 4) did not. This was the opposite of what was found during the October 15, 1991 site walk and called for in the resulting sampling proposal. As a result, it was determined that the Pit 2 water sample would be collected and analyzed for the same parameters intended for the Pit A (Pit 4) sample. This was the only significant change from the approved sampling plan.

Upon completion of the "Pit" location process, the three stream locations were delineated. The Upstream location was determined by walking down the dirt road along the western edge of the property past the old tractor at the western edge of the paved parking area. This location is several hundred yards away from the Magna Metals building and, likewise, significantly upstream of any possible runoff pathways for on-site contamination (see Figure 2 for actual location relative to the Magna Metals site). The "Tributary" location was located at a point roughly 50 feet east of the confluence with Furnace Brook in the wetlands adjacent to the residential area lying to the south of the Magna Metals site.

This location is down-gradient of the hill immediately to the south of the leaching pits. Finally, the Downstream location was positioned at a point along the stream bank approximately 60-70 feet downstream in Furnace Brook from the confluence of the Tributary with Furnace Brook. A proposed location further downstream, closer to the pond was unable to be accessed due to ice cover on the stream and impassable thickets of brambles lining the entire stream bank. All stream locations were marked with wooden stakes; dated and labelled, and trees were marked with red paint to help in finding these locations in the future.

METHODOLOGY

The Pit 2 water sample was collected using a 250 ml amber glass laboratory clean (Level 2) bottle tied to nylon cord and lowered into the Pit 2 opening. The first grab was then slowly poured into three, 40 ml. glass purge vials, which were sealed with no headspace. These samples were later analyzed for the volatile organic compounds; trichloroethene (TCE), xylenes, and ethylbenzene. A Teflon® bailer was not used, as there were only six inches of water covering the sediments and minimum agitation of these sediments was preferred. The subsequent sample grabs were then taken to fill a one liter polyethylene container for metals analysis (Cd, Cr, Cu, Ni, Ag, and Zn). This container was immediately preserved with HNO_3 (nitric acid) and placed with the others in a cooler on ice packs.

The sediment samples from Pit 2 and Pit A were collected using a decontaminated stainless steel 3.25 inch diameter bucket auger attached to an extension in the following manner at each location. The upper six inches of the sediment was sampled first to obtain the VOC aliquot (Pit 2 only); which was collected directly from the auger, using a stainless steel spatula into two 60 ml. amber glass containers, packed with no headspace. Several subsequent grabs were then collected and homogenized thoroughly on Benchkote® paper to drain off any excess water. These were then placed in a laboratory clean 250 ml. amber glass container and later analyzed for metals (Pit 2: Cd, Cr, Cu, Ni, Ag, Zn and Pit A: Cd, Cu, Ni, Zn). The auger was thoroughly decontaminated, using the eight step procedure, (see page 6) before and after each sample location.

The water in Pit 2 was located at a depth of 7.8 feet below the top of the pit opening and was six inches deep. The sediment/sludge was 1.5 feet thick from the water to the cement

base underneath the pit. The total depth of the pit was therefore, 9.8 feet. The sediment was thick, clay-like sludge and contained green, purple, gray, and blue colors with some brown mud. No obvious odor was detected. The sediment in Pit A (Pit 4) (no water) was found at a depth of 6.5 feet below the top of the pit opening, beneath three inches of leaves, and was roughly six inches thick to the cement base. The total depth of Pit A (Pit 4) was about 7 feet. Mostly brown soil was collected with some purple and blue clay-like sludge.

The three stream water samples were collected by submerging the sample containers directly into the water at the appropriate locations. The samples for VOC analysis were collected in three, 40 ml. purge vials with no headspace at each location, and were analyzed for TCE; 1,1,1-trichloroethane, and xylenes.

The three stream sediment locations were sampled immediately below the respective water sample position using a decontaminated 3.25 inch diameter stainless steel bucket auger, which was advanced into the upper six inch increment at each location. The first grab was used to collect the VOC portion of the sediment using a stainless steel spatula to fill two, 60 ml. amber glass containers directly from the auger. One more grab was then collected and placed on Benchkote® paper and thoroughly homogenized before being placed in a 250 ml. amber glass laboratory clean container, to be analyzed for metals (Cr, Cu, Ni, Ag) at each location. The upstream sediment sample was black, sandy, with some organic matter. The Tributary sediment was black, thick, mostly organic with some clay and silt and exhibited a multi-color sheen on the water surface when the auger was removed. The Downstream sediment was very loose, liquidy and black organic matter on top with some brown thicker sediment on bottom.

SAMPLE DOCUMENTATION QA/QC

Sample integrity is a key element in this type of project. Sample integrity documents the validity of the analysis, and can be used for legal documentation (if required). Sample integrity is maintained by IT FAS through proper sample handling and documentation in the field, as well as sample tracking documents required by IT Analytical Services.

All reusable sampling equipment employed by the IT FAS group was thoroughly decontaminated between each sampling location using the following widely accepted protocol:

1. Non-phosphate soap and water rinse
2. Tap water rinse
3. Deionized water rinse
4. 10% nitric acid rinse
5. Deionized water rinse
6. Acetone rinse
7. Air dry
8. Deionized water rinse

In addition to the equipment decontamination protocol previously outlined, latex gloves were worn by sampling personnel and changed between sampling locations to prevent cross-contamination. All sample containers used by IT FAS are certified clean to EPA standards.

All sampling was completely documented in the field using the IT Sample Collection Log; which may include maps, drawings and descriptions of the sampling location, sample date and time, as well as volume and type of sample (matrix). In addition, each sample was assigned a unique I.D. number for tracking and reference purposes. IT Chain-of-Custody and Request-for-Analysis forms were completed on site for each day sampling occurs to accompany samples off site to the laboratory.

All samples were transported to the laboratory on ice, packed in a cooler which was sealed with IT Sample Custody Tape to prevent tampering.

SUMMARY

The analytical results of the January 29, 1992 sampling event at the former Magna Metals site seem to correlate largely with the results of the 1982, 1983 and 1984 sampling events.

As in the 1984 sample collection, the Pit 2 and Pit A (Pit 4) sediment samples contained substantial concentrations of heavy metals, namely copper, nickel, zinc and chromium (see Tables 1 and 2). The Pit 2 sediment sample also indicated the presence of trichloroethene (TCE) in this round (150 ppb), as was evidenced in the 1984 analysis, although at a greatly reduced level at the present. Also, the Pit 2 water analysis yielded no detectable levels for any of the volatile organic compounds and only trace amounts of Cu, Ni, and Zn.

The Upstream water samples were non-detectable for VOCs. The sediments showed trace amounts of chromium, copper and nickel and acetone (70 ppb). The Tributary water samples exhibited traces of TCE (53 ppb), while the sediments showed significant TCE contamination (270 ppb), as well as 1-2,dichloroethene and acetone. Elevated levels of chromium, copper and nickel were also indicated (see Tables 3 and 4). The Downstream water samples yielded only minimal TCE results (10 ppb). The sediments contained significant levels of copper and nickel with a smaller amount of chromium. However, the sediments do show 8600 ppb TCE and 2500 ppb 1,2,dichloroethene, which are significantly higher than those found in the Tributary sediments. The movement of the water in Furnace Brook at this location is slow, due to its proximity to Field Pond (approximately 200 feet), and, as a result, this section of the stream is a good depositional zone for sediment sample collection.

All sample results for the stream locations are listed in Table 3 for this round of sampling. Table 4 contains results from 1983 and 1984 that correlate closely by location to the results of this 1992 sampling event.

Figure 1 depicts the actual locations of Pit 2 and Pit A. When comparing this drawing with the NYSDEC 1982 (8/19/82) and 1984 (5/15/84) reports, it can be determined that the Pit A location for the 1992 sample collection is really Pit 4 from 1982/1984. Another Pit A at the western end of the leaching field, is not to be confused with this sampling location, and was not sampled during this event, but was during the 1982 and 1984 NYSDEC visits.

Figure 2 depicts the actual 1992 stream sample locations. This can also be used as a basis for further stream sample acquisition, especially in the Tributary and Downstream areas, where the contamination has migrated from the Magna Metals site.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

Baker Properties
c/o FAS Avenel
7 Cragwood Road
Avenel, NJ 07001
Attn: Mr. Ronald Kenyon

Date: February 21, 1992

NJ Lab Certification ID#: 12064

Job No.: 482056

P.O. Number: 482056

This is the Certificate of Analysis for the following samples:

Client Project ID: Baker Properties
Date Received: 01/30/92
Number of Samples: 10
Sample Type: WATER/SEDIMENT

I Samples were labeled as follows:

SAMPLE IDENTIFICATION	LABORATORY #
PIT 2 WATER/GRAB	F2-01-339-01
PIT 2 SEDIMENT/GRAB	F2-01-339-02
PIT A SEDIMENT/GRAB	F2-01-339-03
UPSTREAM WATER/GRAB	F2-01-339-04
UPSTREAM SEDIMENT/GRAB	F2-01-339-05
TRIBUTARY WATER	F2-01-339-06
TRIBUTARY SEDIMENT	F2-01-339-07
DOWNSTREAM WATER	F2-01-339-08
DOWNSTREAM SEDIMENT	F2-01-339-09
FIELD BLANK	F2-01-339-10

Reviewed and Approved:

Ralph A. Kocsis
Project Manager

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000
Work Order: F2-01-339

SAMPLE ID	PIT 2 SEDIMENT/ GRAB	PIT A SEDIMENT/ GRAB	UPSTREAM SEDIMENT/GRAB	
SAMPLED	01/29/92	01/29/92	01/29/92	
TEST				UNITS
Total Solids	28	68	69	Percent
	[0.01]	[0.01]	[0.01]	

ND indicates the parameter was not detected.
Detection limits are specified in [].

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000
Work Order: F2-01-339

SAMPLE ID	TRIBUTARY SEDIMENT	DOWNSTREAM SEDIMENT	
SAMPLED	01/29/92	01/29/92	
TEST			UNITS
Total Solids	34	62	Percent
	[0.01]	[0.01]	

ND indicates the parameter was not detected.
Detection limits are specified in [].

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000
Work Order: F2-01-339

TEST NAME: **Metals**

SAMPLE ID: **PIT 2 WATER/GRAB**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 02/03/92

	Results in mg/L	Detection Limit
Arsenic	ND	0.010
Cadmium	ND	0.005
Chromium	ND	0.010
Copper	0.15	0.020
Nickel	0.20	0.040
Selenium	ND	0.005
Silver	ND	0.010
Zinc	0.21	0.020

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Volatile Organics**

SAMPLE ID: **PIT 2 WATER/GRAB**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 01/30/92

	Results in ug/L	Detection Limit
Ethylbenzene	ND	5
Trichloroethene	ND	5
Xylenes	ND	10

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Metals**

SAMPLE ID: **PIT 2 SEDIMENT/GRAB**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 02/07/92

	Results in mg/Kg Dry Wt.	Detection Limit
Arsenic	49	7.1
Cadmium	14	1.8
Chromium	1200	3.6
Copper	46000	360
Nickel	110000	710
Selenium	130	8.9
Silver	6.8	3.6
Zinc	25000	360

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Volatile Organics**

SAMPLE ID: **PIT 2 SEDIMENT/GRAB**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 02/03/92

	Results in ug/Kg Dry Wt.	Detection Limit
Ethylbenzene	ND	89
Trichloroethene	150	89
Xylenes	ND	180

Comments: ND indicates the compound is not detected at the level indicated.

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EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056

Work Order: F2-01-339

TEST NAME: **Metals**

SAMPLE ID: **PIT A SEDIMENT/GRAB**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 02/06/92

	Results in mg/Kg Dry Wt.	Detection Limit
Cadmium	3.7	0.74
Copper	1300	2.9
Nickel	10000	150
Zinc	7000	74

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Volatile Organics**

SAMPLE ID: **UPSTREAM WATER/GRAB**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 01/30/92

	Results in ug/L	Detection Limit
1,1,1-Trichloroethane	ND	5
Trichloroethene	ND	5
Xylenes	ND	10

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056

Work Order: F2-01-339

TEST NAME: **Metals**

SAMPLE ID: **UPSTREAM SEDIMENT/GRAB**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 02/06/92

	Results in mg/Kg Dry Wt.	Detection Limit
Chromium	25	1.4
Copper	16	2.9
Nickel	73	5.8
Silver	ND	1.4

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Volatile Organics**

SAMPLE ID: **UPSTREAM SEDIMENT/GRAB**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 01/31/92

	Results in ug/Kg Dry Wt.	Detection Limit
1-2,Dichloroethene	ND	7
Trichloroethene	ND	7
Acetone	70	14

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Volatile Organics**

SAMPLE ID: **TRIBUTARY WATER**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 01/30/92

	Results in ug/L	Detection Limit
1,1,1-Trichloroethane	ND	5
Trichloroethene	53	5
Xylenes	ND	10

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Metals**

SAMPLE ID: **TRIBUTARY SEDIMENT**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 02/06/92

	Results in mg/Kg Dry Wt.	Detection Limit
Chromium	110	2.9
Copper	160	5.9
Nickel	260	12
Silver	ND	2.9

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056

Work Order: F2-01-339

TEST NAME: **Volatile Organics**

SAMPLE ID: **TRIBUTARY SEDIMENT**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 01/31/92

	Results in ug/Kg Dry Wt.	Detection Limit
1-2,Dichloroethene	48	15
Trichloroethene	270	15
Acetone	88	29

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Volatile Organics**

SAMPLE ID: **DOWNSTREAM WATER**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 01/30/92

	Results in ug/L	Detection Limit
1,1,1-Trichloroethane	ND	5
Trichloroethene	10	5
Xylenes	ND	10

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Metals**

SAMPLE ID: **DOWNSTREAM SEDIMENT**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 02/06/92

	Results in mg/Kg Dry Wt.	Detection Limit
Chromium	48	1.6
Copper	780	3.2
Nickel	320	6.4
Silver	ND	1.6

Comments: ND indicates the compound is not detected at the level indicated.

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Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Volatile Organics**

SAMPLE ID: **DOWNSTREAM SEDIMENT**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 02/04/92

	Results in ug/Kg Dry Wt.	Detection Limit
1-2,Dichloroethene	2500	400
Trichloroethene	8600	400
Acetone	ND	800

Comments: ND indicates the compound is not detected at the level indicated.

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(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Metals**

SAMPLE ID: **FIELD BLANK**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 02/03/92

	Results in mg/L	Detection Limit
Arsenic	ND	0.010
Cadmium	ND	0.005
Chromium	ND	0.010
Copper	ND	0.020
Nickel	ND	0.040
Selenium	ND	0.005
Silver	ND	0.010
Zinc	ND	0.020

Comments: ND indicates the compound is not detected at the level indicated.

IT ANALYTICAL SERVICES
EDISON, NJ
(908) 225-2000

Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

TEST NAME: **Volatile Organics**

SAMPLE ID: **FIELD BLANK**
SAMPLE DATE: **01/29/92**
ANALYSIS DATE: 01/31/92

	Results in ug/L	Detection Limit
1,2-Dichloroethene	ND	25
Ethylbenzene	ND	25
1,1,1-Trichloroethane	ND	25
Trichloroethene	ND	25
Xylenes	ND	50
Acetone	200	50

Comments: ND indicates the compound is not detected at the level indicated.

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Company: Baker Properties
Date: February 21, 1992
Client Job No.: 482056
Work Order: F2-01-339

IA COMMENTARY

Batch RPD's for chromium did not meet QC acceptance criteria. Data was accepted since the difference between the results was less than five times the detection limit.

Sample PIT 2 SEDIMENT/GRAB (F201339-02) required dilutions to bring arsenic, copper, nickel, selenium and zinc concentrations within their calibrated range. Detection limits are increased accordingly.

Sample PIT A SEDIMENT/GRAB (F201339-03) required dilutions to bring nickel and zinc concentrations within their calibrated range. Detection limits are increased accordingly.

Matrix spike/duplicate recoveries did not meet QC acceptance criteria for zinc due to matrix effects. Results were accepted on the basis of blank spike recoveries.

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Company: Baker Properties
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Work Order: F2-01-339

II ANALYTICAL RESULTS/METHODOLOGY

The analytical results for this report are presented by Analytical test. Each set of data will include sample identification information, the analytical results, and the appropriate detection limits. Detection limits may vary due to factors arising from concentration/dilution of the sample and sample matrix. ND denotes that the compound is not detected at or above the indicated detection limit. The methodologies for the analytical results requested are described below.

Metals

The analysis of metals is based on Method 200.7 from 40CFR, Part 136. Samples to be analyzed by flame AA or ICP are digested with hydrochloric and nitric acid. Furnace analysis requires nitric acid digestion and mercury samples are digested with nitric and sulfuric acid.

Lead, Arsenic, Selenium, Antimony and Thallium are analyzed by graphite furnace, Mercury by cold vapor AA and all other metals by flame AA or ICP.

Volatile Organics - GC/MS (Clean water)

For the analysis of volatile organics, EPA Methods 624 is used. An inert gas is bubbled through a sample contained in a specifically designed purging chamber. The purgeables are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent column where the purgeables are trapped. After purging is completed, the sorbent column is heated and backflushed with the inert gas to desorb the purgeables onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the purgeables which are then detected with a mass spectrometer.

Volatile Organics - GC/MS (Waste water)

For the analysis of volatile organics, EPA Methods 624 is used. An inert gas

is bubbled through a sample contained in a specifically designed purging chamber. The purgeables are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent column where the purgeables are trapped. After purging is completed, the sorbent column is heated and backflushed with the inert gas to desorb the purgeables onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the purgeables which are then detected with a mass spectrometer.

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Volatile Organics - GC/MS (Solid)

For the analysis of volatile organics in soils, SW-846, 3RD Edition, Method 8240 is employed. The volatile organic compounds are introduced into the gas chromatograph by the purge and trap method. The purgeables are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent column where the purgeables are trapped. After purging is completed, the sorbent column is heated and backflushed with the inert gas to desorb the purgeables onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the purgeables which are then detected with a mass spectrometer.

Total Solids

The analysis of total solids is based on Standard Methods, 16th Edition - (209F). A well mixed sample is evaporated in a weighed dish and dried to constant weight. The increase in weight over that of the empty dish represents the total solids.In other words a sample is first weighed then subjected to tempatures of 103 degrees celsius for four hours after which the sample is re-weighed; the difference in the two weights being the % total solids.

III QUALITY CONTROL

The Determinations were performed in accordance with EPA/NJDEP approved methodology.

IT ANALYTICAL SERVICES
EDISON, NJ
(201) 225-2000

DEFINITIONS

ND(U) - Analyte was analyzed for, but not detected. The value given after the ND or U is the detection limit for that compound.

A - The compound denoted with an "A" indicates a suspected aldol condensation product.

B - Indicates the compound was also detected in the blank, but at levels less than 5X the detection limit. Values for this compound may be suspect

J - Indicates the compound was detected in the sample, but at levels less than the detection limit. Results should be regarded as estimated.

MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
ug/L - Micrograms/Liter
ug/Kg - Micrograms/Kilogram
mg/Kg - Milligrams/Kilogram
%Rec - Precent Recovery
mg/L - Milligrams/Liter
DL - Detection Limit

QUALITY CONTROL WINDOWS

Surrogate Recoveries

GC/MS Volatiles (624, 8240)	Water	Soil
D4-1,2-dichloroethane	76-114	70-121
D8-toluene	88-110	81-117
4-Bromofluorobenzene	86-115	74-121

Surrogate Recoveries

GC/MS SemiVolatiles (625, 8270)	Water	Soil
D5-Nitrobenzene	35-114	23-120
2-Fluorobiphenyl	43-116	30-115
D14-Terphenyl	33-141	18-137
D5-Phenol	10-94	24-113
2-Fluorophenol	21-100	25-121
2,4,6-Trobromophenol	10-123	19-122

Surrogate Recoveries

Pesticides* (608, 8080)	Water	Soil
Tetrachloro-m-xylene	60-150	60-150
Dibutyl chlorendate	24-154	20-150

Surrogate Recoveries

Method 602, BTEX, 8020	Water	Soil
4-Bromofluorobenzene	62-139	62-138

* SW846 allows one surrogate to be outside recovery windows.

Surrogate Recoveries

Method 601 (8010)	Water	Soil
Bromochloromethane	74-121	74-121

Method 8015	Water	Soil
Acetone	68-132	68-132

Surrogate Recoveries

Method 8060**	Water	Soil
Tetrachloro-m-xylene	60-150	60-150
Decachlorobiphenyl	60-150	60-150

Herbicides**	Water	Soil
2,4-DB	60-150	60-150

** Advisory Limits

METALS / WET CHEMISTRY

	Recovery	RPD
Blank Spike	75-125	
Blank Spike Duplicate	75-125	<20%
Matrix Spike	75-125	
Matrix Spike Duplicate	75-125	<20%
Replicate		<20%
Check Standard	90-110	

082 · 89

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 366832
Page 1 of 2

Project Name/No.[1] BAKER Properties #482056
Sample Team Members[2] Tom Breen, Angel Almonte
Profit Center No.[3] 4624
Project Manager[4] Ron Kenyon
Purchase Order No.[6] I.P.O.
Required Report Date[11] 2-20-92

Samples Shipment Date[7] 01-29-92
Lab Destination[8] ITAS - Edison
Lab Contact[9] Ralph K.
Project Contact/Phone[12]
Carrier/Waybill No.[13]

Bill to:[5] I.T. FAS (482056) Avenel, N.J.
Report to:[10] ITFAS c/o Ron Kenyon

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
147399 A	Pit 2 Water/Grab	1-29-92/1140	PL.	1 Liter	HNO_3 Ice	Cd, Cr, Cu, Ni, Ag, Zn, Se, As	good, 4°C JV	
↓ B,C,D	↓ ↓	↓	Purge Vial	3 X 40 mL.	Ice	VOA GC/MS		
147400 A	Pit 2 Sediment/Grab	1200	Amber Glass	250 mL.		Cd, Cr, Cu, Ni, Ag, Zn, Se, As		
↓ B,C	↓ ↓	↓	↓	2 X 60 mL.	↓	VOA ~~GC/MS~~ TB 1-29-92		
147401 A	Pit A Sediment/Grab	1225	Amber Glass	250 mL.	Ice	Cd, Cu, Ni, Zn		
↓ B,C	↓ ↓	↓	↓	2 X 60mL	↓	VOA Void 1-29-92 TB		
147402 A,B,C	Upstream Water/Grab	1325	Purge Vial	3 X 40 mL.	Ice	VOA GC/MS		
147403 A	Upstream Sediment/Grab	↓ 1330	Amber Glass	250 mL.	Ice	Cr, Cu, Ni, Ag.	↓	

Special Instructions:[23] See ATTACHED Sheet !!

Possible Hazard Identification:[24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal:[25]
Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

Turnaround Time Required:[26]
Normal ☒ Rush ☐

QC Level:[27]
I. ☐ II. ☐ III. ☐ Project Specific (specify):

1. Relinquished by[28] (Signature/Affiliation) Tom Breen ITFAS	Date: 01-29-92 Time: 1830	1. Received by[28] (Signature/Affiliation) Locked in Cold Box #3	Date: 01-29-92 Time: 1830
2. Relinquished by (Signature/Affiliation) Removed from Locked Box	Date: 1-30-92 Time: 1400	2. Received by (Signature/Affiliation) John Vochl ITAS	Date: 1-30-92 Time: 1400
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29] LOT #10008

INTERNATIONAL TECHNOLOGY CORPORATION

MCA 3/15/91

BCLP02463

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 366832

Project Name Baker Properties Lot # 10008

Project No. 482056

Samples Shipment Date 01-29-92

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
147403 B,C	upstream Sediment / GRAB	1-29-92/1330	Amber Glass	2 X 60 mL.	Ice	VOA	good, 4°C AV	
147404 A,B,C	Tributary Water	1400	Purge Vial	3 X 40 mL		VOA GC/MS		
147405 A	Tributary Sediment	1410	Amber Glass	250 mL.		Cr, Cu, Ni, Ag.		
↓ B,C	↓	↓	↓	2 X 60 mL.		VOA		
147406 A,B,C	Down Stream Water	1445	Purge Vial	3 X 40 mL		VOA GC/MS		
147407 A	Down Stream Sediment	1450	Amber Glass	250 mL.		Cr, Cu, Ni, Ag		
↓ B,C	↓	↓	↓	2 X 60 mL.	↓	VOA		
147408 A	Field Blank ↓	1125	PL.	1 Liter	HNO_3/Ice	Cd, Cu, Cr, Ni, Ag Zn, As, Se		
↓ B,C,D	↓ ↓	↓ ↓	Purge Vial	3 X 40 mL	Ice	VOA GC/MS	↓	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

INTERNATIONAL TECHNOLOGY CORPORATION

BCLP02464

TABLE 1

BAKER PROPERTIES
PIT 2 ANALYTICAL SUMMARY

	PIT 2 WATER		PIT 2 SEDIMENT/SLUDGE	
	*1984 (5/15/84)	1992 (1/29/92)	1984	1992
TOTAL METALS		(ppm or mg/L)	(ppm or mg/Kg)	
ARSENIC	N/A	ND	5.0	49.0
CADMIUM	N/A	ND	1.6	14.0
CHROMIUM	N/A	ND	5.7	1,200.0
COPPER	N/A	0.15	15,800.0	46,000.0
NICKEL	N/A	0.20	13,800.0	110,000.0
MERCURY	N/A	N/A	ND	N/A
SELENIUM	N/A	ND	13.0	130.0
SILVER	N/A	ND	0.70	6.8
ZINC	N/A	0.21	9,500.0	25,000.0
VOLATILE ORGANIC COMPOUNDS		(ppb or ug/Kg)	(ppb or ug/Kg)	
TRICHLOROETHENE (TCE)	N/A	ND	2,600.0	150.0
VINYL CHLORIDE	N/A	N/A	ND	N/A
1,1,1 TRICHLOROETHANE	N/A	N/A	N/A	N/A
TOTAL XYLENES	N/A	ND	7,100.0	ND
ETHYLBENZENE	N/A	ND	3,300.0	ND
ACETONE	N/A	N/A	ND	N/A
1,2 DICHLOROETHENE	N/A	N/A	ND	N/A

ND = NOT DETECTABLE ABOVE DETECTION LIMIT
N/A = NOT APPLICABLE; SAMPLES NOT COLLECTED AND/OR ANALYZED FOR THESE PARAMETERS
* = 1984 SAMPLE EVENT CONDUCTED BY NYSDEC; MOST RECENT DATA AVAILABLE PRIOR TO 1992
BAKER PROP.TBL

TABLE 2

BAKER PROPERTIES
***PIT A (4) ANALYTICAL SUMMARY**

	*PIT A (4) WATER		*PIT A (4) SEDIMENT/SLUDGE	
	1984 (5/15/84)	1992 (1/29/92)	1984	1992
TOTAL METALS			(ppm or mg/Kg)	
ARSENIC	N/A	N/A	27.5	N/A
CADMIUM	N/A	N/A	3.1	3.7
CHROMIUM	N/A	N/A	223.0	N/A
COPPER	N/A	N/A	3,690.0	1,300.0
NICKEL	N/A	N/A	27,500.0	10,000.0
MERCURY	N/A	N/A	ND	N/A
SELENIUM	N/A	N/A	7.55	N/A
SILVER	N/A	N/A	0.81	N/A
ZINC	N/A	N/A	8,310.0	7,000.0
VOLATILE ORGANIC COMPOUNDS			(ppb or ug/Kg)	
TRICHLOROETHENE (TCE)	N/A	N/A	680.0	N/A
VINYL CHLORIDE	N/A	N/A	ND	N/A
1,1,1 TRICHLOROETHANE	N/A	N/A	N/A	N/A
TOTAL XYLENES	N/A	N/A	42.0	N/A
ETHYLBENZENE	N/A	N/A	ND	N/A
ACETONE	N/A	N/A	ND	N/A
1,2 DICHLOROETHENE	N/A	N/A	ND	N/A

NOTE:
* = PIT A IS ACTUALLY "PIT 4" FROM THE 1984 SAMPLING EVENT

BAKER PROP.TBL.

TABLE 3
BAKER PROPERTIES
STREAM SAMPLING ANALYTICAL SUMMARY

	1992 RESULTS (1/29/92)					
SAMPLE NO:	(339-04)	(339-05)	(339-06)	(339-07)	(339-08)	(339-09)
LOCATION:	UPSTREAM		TRIBUTARY		DOWNSTREAM	
MATRIX:	WATER	SEDIMENT	WATER	SEDIMENT	WATER	SEDIMENT
TOTAL METALS (ppm or mg/Kg)						
ARSENIC	N/A	N/A	N/A	N/A	N/A	N/A
CADMIUM	N/A	N/A	N/A	N/A	N/A	N/A
CHROMIUM	N/A	25.0	N/A	110.0	N/A	48.0
COPPER	N/A	16.0	N/A	160.0	N/A	780.0
NICKEL	N/A	73.0	N/A	260.0	N/A	320.0
MERCURY	N/A	N/A	N/A	N/A	N/A	N/A
SELENIUM	N/A	N/A	N/A	N/A	N/A	N/A
SILVER	N/A	ND	N/A	ND	N/A	ND
ZINC	N/A	N/A	N/A	N/A	N/A	N/A
VOLATILE ORGANIC COMPOUNDS (ppb) OR ug/L (WATER); ug/Kg (SEDIMENT)						
TCE	ND	ND	53.0	270.0	10.0	8600.0
VINYL CHLORIDE	N/A	N/A	N/A	N/A	N/A	N/A
1,1,1-TRICHLOROETHANE	ND	N/A	ND	N/A	ND	N/A
XYLENES	ND	N/A	ND	N/A	ND	N/A
ACETONE	N/A	70.0	N/A	88.0	N/A	ND
ETHYLBENZENE	N/A	N/A	N/A	N/A	N/A	N/A
T-1,2 DICHLOROETHENE	N/A	ND	N/A	48.0	N/A	2500.0

BAKER PROP.TBL.

TABLE 4
BAKER PROPERTIES

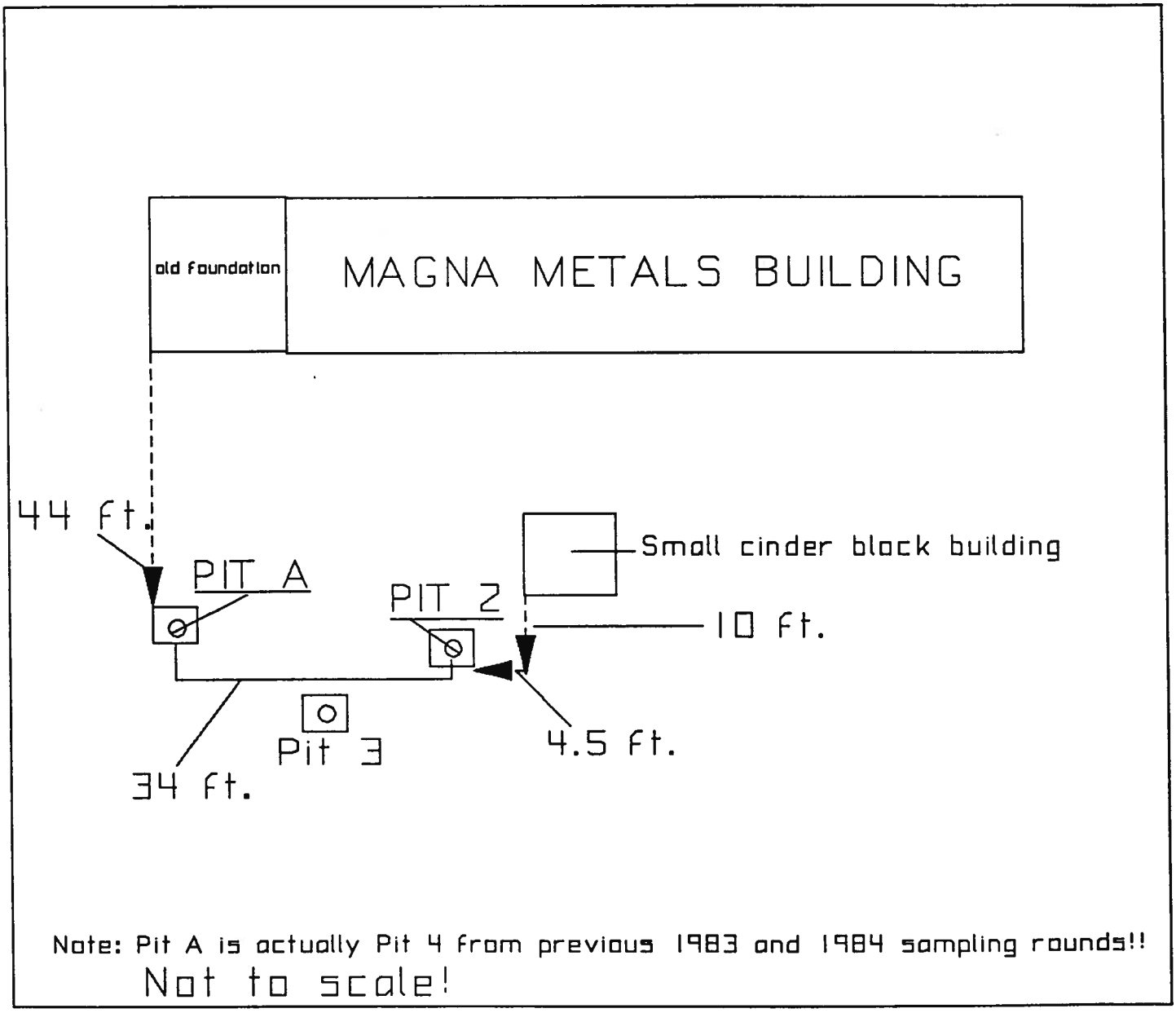
APPLICABLE HISTORICAL RESULTS

SAMPLE NO.	(1983 (3/15/83) (4B)		(4A)		(3)		(1984 (5/15/84) (01)		(03)		04)	
*LOCATION	UPSTREAM		TRIBUTARY		DOWNSTREAM		UPSTREAM		TRIBUTARY		DOWNSTREAM	
MATRIX	WTR	SED	WTR	SED	WTR	SED	WTR	SED	WTR	SED	WTR	SED
							(ppb)	(ppm)	(ppb)	(ppm)	(ppb)	(ppm)
TOTAL METALS												
ARSENIC	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	ND	ND	ND
CADMIUM	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	ND	ND	ND
CHROMIUM	N/A	N/A	N/A	N/A	N/A	N/A	ND	7.50	ND	21.90	ND	16.90
COPPER	N/A	N/A	N/A	N/A	N/A	N/A	ND	5.70	ND	36.50	6.90	100.0
NICKEL	N/A	N/A	N/A	N/A	N/A	N/A	ND	30.10	ND	56.20	ND	39.80
MERCURY	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	ND	ND	ND
SELENIUM	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	0.61	ND	ND
SILVER	N/A	N/A	N/A	N/A	N/A	N/A	ND	0.30	ND	ND	ND	ND
ZINC	N/A	N/A	N/A	N/A	N/A	N/A	21.0	22.30	ND	37.30	17.0	39.90
VOLATILE ORGANICS (ppb) OR ug/L (WATER); ug/Kg (SEDIMENTS)												
TCE	1.40	N/A	31.0	N/A	10.50	N/A	ND	ND	16.0	30.0	62.0	ND
VINYL CHLORIDE	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	ND	ND	2700.0
1,1,1 TRICHLOROETHANE	ND	N/A	ND	N/A	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A
XYLENES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	ND	ND
ACETONE	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	190.0	ND	ND
ETHYL-BENZENE	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	ND	ND	ND
T-1,2 DICHLOROETHENE	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	300.0	25.0	1400.0
CIS 1,2 DICHLOROETHENE	ND	N/A	3.10	N/A	13.0	ND	N/A	N/A	N/A	N/A	N/A	N/A

* ALL 1983 AND 1984 LOCATIONS (UPSTREAM, TRIBUTARY, DOWNSTREAM) ARE SIMILAR TO THOSE IN THE 1992 SAMPLE ROUND AND ARE USED TO SHOW THE GENERAL TREND OF THE WATER AND SEDIMENT CONTAMINATION.

BAKER PROP.TBL.

BAKER PROPERTIES
FIGURE 1
PIT 2 AND PIT A LOCATIONS
January 29, 1992



Note: Pit A is actually Pit 4 from previous 1983 and 1984 sampling rounds!!

Not to scale!

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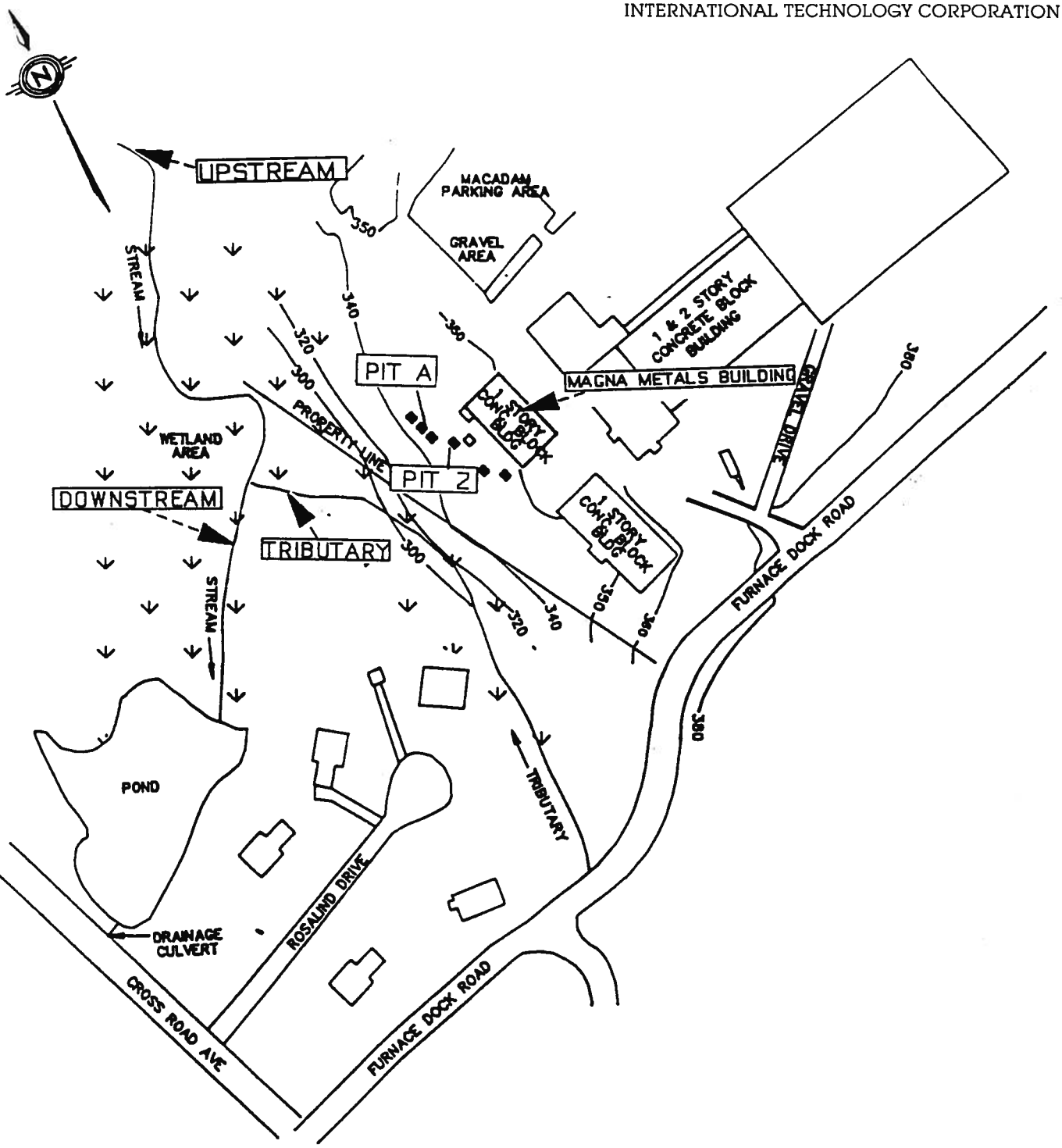

SURFACE FEATURES FROM WESTCHESTER COUNTY, DEPARTMENT OF PLANNING AERIAL PHOTOGRAPH, SPRING 1990

TOPOGRAPHIC INTERPRETATION FROM NYSDEC, 1983

■ 6 TANKS/PITS LOCATED AS OF 3/28/91

I.T. CORPORATION		
DEPT IT FAS DR T.B.	APPROVED	
DATE 1-29-92 CH		
SCALE 1"=200'		

BAKER PROPERTIES
Magna Metals site
FIGURE 2
Stream Sampling Locations